

## CHAIR CONVERSION DEVICE

### REFERENCE TO CO-PENDING APPLICATIONS

5 The entire subject matter of U.S. Provisional application serial number 60/461,442 filed April 9, 2003 and entitled RECLINER ACCESSORY DEVICE is incorporated by reference. The applicant claims priority benefit under Title 35, United States Code, and Section 119(e) of U.S. Provisional application serial number 60/461,442 filed April 9, 2003 and entitled RECLINER ACCESSORY DEVICE.

### 10 BACKGROUND OF THE INVENTION

#### 1. FIELD OF THE INVENTION

The present invention relates to chairs and more particularly, but not necessarily exclusively to mobile  
15 or stationary recliner chairs for medical patients.

#### 2. DESCRIPTION OF THE RELATED ART

In recent years, there has been an increase in the level of comfort available to people in their  
20 residences, in large part by the ubiquitous recliner known by the trade name LA-Z-BOY. Recliners of this brand and others similar to it come in an increasingly wide array of colours, fabrics, styles, all with the intent of providing reclining comfort to the owner.

However, there has been relatively fewer recliner products available in medical environments such as  
25 hospitals and nursing homes and those that are available are usually of limited comfort and bland in appearance.

It is an object of the present invention to provide a novel chair and method of equipping a chair for medical and other environments.

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## SUMMARY OF THE INVENTION

In one of its aspects, the present invention provides a device for equipping a recliner with one or more accessories, comprising a base frame portion attachable to the recliner, the base frame having a plurality of mounting locations and a plurality of recliner accessories, each of which is arranged for removable attachment to a corresponding one or more of said mounting locations.

In an embodiment, the base frame includes a pair of first plates positioned for engaging opposite side regions of the recliner, a pair of second plates positioned for engaging a back wall region of the recliner, and at least one third plate for engaging a bottom region of the recliner.

In an embodiment, one or more accessories are medical accessories.

In an embodiment, a number of the mounting locations are positioned on one or more of the first plates, one or more of the second plates, or both. One or more of the locations includes a means for engaging an elongate member on one or more of the accessories.

In an embodiment, one or more of the engaging means includes a sleeve portion dimensioned to receive the elongate member therein.

In an embodiment, one or more of the sleeve portions are located on the first, second or third plates.

In an embodiment, the accessories include one or more IV poles, one or more medication containers, one or more tray rods and trays, two push handles for recliners with wheels, one or more urinary hooks or a combination thereof.

In an embodiment, the second plates are spaced from one another, wherein one of the engaging means is operable to carry a medication container.

In an embodiment, the engaging means includes at least one clamp member which is dimensioned to

clamp an outer surface of the medication container.

In an embodiment, the accessories include one or more push bars.

- 5 In an embodiment, one of the accessories is a tray. The tray includes a support arm and one of the mounting locations includes a support arm receiving formation. The support arm receiving formation includes a sleeve portion.

In another of its aspects, there is provided a recliner chair device, comprising a recliner frame  
10 supporting a seat portion, a back portion and a pair of arm portions, an accessory portion attachable to the recliner frame for equipping the recliner chair device with one or more accessories, the accessory portion including an accessory base frame portion attachable to the recliner frame, the accessory base frame having a plurality of mounting locations and a plurality of recliner accessories, each of which is arranged for removable attachment to a corresponding one or more of said mounting locations.

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In one of its aspects, the present invention provides a device for equipping a recliner with one or more accessories, comprising a base frame means having a periphery which is complementary with and removably attachable to a section of the recliner, the base frame means a number of mounting means, and a plurality of recliner accessories, each of which is arranged for attachment with a corresponding  
20 one or more of said mounting means, in order to be positioned in an operative position on an exterior of the recliner.

In one of its aspects, the present invention provides a device for equipping a recliner with one or more accessories, comprising a base frame portion having a periphery which is complementary with and  
25 removably attachable to a section of the recliner, the base frame including a number of mounting locations, and a plurality of recliner accessories, each of which is arranged for attachment to a corresponding one or more of said mounting locations, in order to be positioned in an operative position on an exterior of the recliner.

30 In an embodiment, a first sleeve member is provided at one or more of the mounting locations. The

first sleeve member is positioned so as to be exposed to or accessible from a peripheral region of the recliner. In one example a pair of first sleeve members are provided at one or more of said mounting locations. The pair of first sleeve members is arranged to be oriented horizontally adjacent a side peripheral edge region, a rear peripheral edge region or a front peripheral region of the recliner.

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In an embodiment, a second sleeve member is provided at one or more of the mounting locations. The second sleeve member is arranged to be oriented vertically adjacent a side peripheral edge region, a rear peripheral edge region or a front peripheral edge region and to be exposed to or accessible from a peripheral region of the recliner. In one example, each of the second sleeve members is be arranged to be oriented vertically and positioned adjacent a side face, a rear face or a front face of the recliner and one or more of the second sleeve members is arranged to be oriented vertically and positioned near a respective corner of the recliner.

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In an embodiment, the device further comprises an undercarriage to render the recliner mobile when the device is mounted thereon. The undercarriage preferably includes a pair of rear caster wheels, each of which is mounted on the base frame portion in order to be located against each rear corner of the recliner when the device is mounted thereon. If desired, the undercarriage includes a pair of front caster wheels, each to be located against each front corner of the recliner when the device is mounted thereon. If desired, the front caster wheels may include a caster wheel frame member which is separate from the base frame portion.

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In an embodiment, the base frame portion includes a pair of corner formations, each to enclose a corresponding corner region of the recliner when the device is mounted thereon. In this case, a frame member is provided for joining the corner formations together. Each corner formation may include one or more of a bottom portion to engage a bottom region of the recliner, a side portion to engage a side region of the recliner and a rear portion to engage a rear region of the recliner. In this case, the bottom, side and rear portions respectively include a bottom, side and rear panels which are attached together at adjacent edges thereof. The frame member may be length adjustable to adjust the spacing between the corner formations, thereby to accommodate recliners of varying dimensions and the first and second sleeve members may be in orientations other than horizontal and vertical

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In one embodiment, the accessories include one or more push bars positionable in selected ones of the second sleeve members for pushing the recliner, one or more trays, document holders, or carriers for securing and/or positioning articles on the recliner.

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In another of its aspects, the present invention provides a mounting bracket for equipping a recliner with one or more recliner accessories, comprising a base frame portion having a periphery which is complementary with and removably attachable to a rear section of the recliner, the base frame including a number of mounting locations for receiving the accessories in an operative position on an exterior of the recliner.

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In still another of its aspects, the present invention provides a recliner comprising a recliner frame supporting a seat portion, a back portion and a pair of arm portions, a mounting bracket mounted on the recliner and a number of recliner accessories removably attached to the mounting bracket, the mounting bracket further comprising a base frame portion having a periphery which is complementary with and removably attachable to a section of the recliner, the base frame including a number of mounting locations, each of the recliner accessories arranged for attachment to a corresponding one or more of said mounting locations, in order to be positioned in an operative on an exterior of the recliner.

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20 In still another of its aspects, the present invention provides a method of equipping a recliner with accessories, comprising the steps of:

- providing a recliner with a frame supporting a seat portion, a back portion and a pair of arm portions;

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- providing a mounting bracket assembly with a base frame portion having a periphery which is complementary with and removably attachable to a rear section of the recliner;

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- providing a number of mounting locations on the mounting bracket assembly for

removably mounting a number of recliner accessories thereon;

- installing the mounting bracket assembly on the recliner; and
- installing the accessories on the mounting bracket.

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In still another of its aspects, the present invention provides a method of equipping a recliner with accessories, comprising:

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- a step for providing a recliner with a frame supporting a seat portion, a back portion and a pair of arm portions;

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- a step for providing a mounting bracket assembly with a base frame portion having a periphery which is complementary with and removably attachable to a rear section of the recliner;

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- a step for providing a number of mounting locations on the mounting bracket assembly for removably mounting a number of recliner accessories thereon;
- a step for installing the mounting bracket assembly on the recliner; and
- a step for installing the accessories on the mounting bracket.

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In still another of its aspects, the present invention provides a mounting bracket for equipping a chair with one or more accessories, comprising a base frame portion having a periphery which is complementary with and removably attachable to a section of the chair, the base frame including a plurality of mounting locations for receiving the accessories in an operative position on an exterior of the chair.

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In still another of its aspects, the present invention provides a chair comprising a chair frame

supporting a seat portion and a back portion, a mounting bracket mounted on the chair and a number of chair accessories removably attached to the mounting bracket, the mounting bracket further comprising a base frame portion having a periphery which is complementary with and removably attachable to a rear section of the chair, the base frame including a plurality of mounting locations, each of the chair accessories being arranged for attachment to a corresponding one or more of said mounting locations, in order to be positioned in an operative position on an exterior of the chair.

In still another of its aspects, the present invention provides a method of equipping a chair with accessories, comprising the steps of:

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- providing a chair with a frame supporting a seat portion and a back portion;
- providing a mounting bracket assembly with a base frame portion having a periphery which is complementary with and removably attachable to a section of the chair;

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- providing a number of mounting locations on the mounting bracket assembly for removably mounting a number of chair accessories thereon;

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- installing the mounting bracket assembly on the chair; and
- installing the accessories on the mounting bracket.

In yet another of its aspects, the present invention provides a conversion device for converting a recliner chair, comprising a base with one or more frame plate portions to engage a lower surface of the normally stationary recliner chair, and a plurality of mounting means for providing mounting locations for one or more peripheral articles for use with respect to the recliner chair.

In an embodiment, the accessories include one or more push bars positionable in selected ones of the second sleeve members for pushing the recliner.

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In yet another of its aspects, the present invention provides a mounting bracket assembly for equipping a recliner with one or more accessories, comprising a pair of corner bracket units, each having a periphery which is complementary with and removably attachable to a corner region of the recliner, each corner bracket including bottom plate portion, a side plate portion and a rear base portion, wherein adjacent pairs of the plate portions are attached together along their edges, and a number of mounting formations on one or more of the plate members, each mounting formation being arranged to engage a complementary shaped mounting member on a recliner accessory article.

In still another of its aspects, the present invention provides a kit for converting a recliner chair, comprising a pair of corner bracket units, each having a periphery which is complementary with and removably attachable to a corner region of the recliner, each corner bracket including bottom plate portion, a side plate portion and a rear base portion, wherein adjacent pairs of the plate portions are attached together along their edges, and a number of mounting formations on one or more of the plate portions, the kit further comprising one or more of:

- at least one push bar which is positionable in a corresponding mounting formation in one or more of the corner brackets so as to be adjacent a rear corner of the recliner chair, the push bar having a handle formation which is operatively positioned at an elevation within reach of a caregiver operator of the recliner;
- a tray assembly having a mounting arm which is positionable one of said mounting formations, the tray assembly including an arm which is arranged to operatively position the tray adjacent the recliner;
- one or more of a medication holder for securing a medication container; a holder for supporting a medical accessory and one or more bumper members for preventing damage to the recliner, each having at least one engaging means for engaging a corresponding mounting formation.



In an embodiment, the medication holder has a frame for securing the medication container, the frame being length extensible to accommodate varying lengths of medication containers.

5 In still another of its aspects, the present invention provides a mounting bracket for equipping an article with one or more accessories, comprising a base frame portion having a periphery which is complementary with and removably attachable to a section of the article, the base frame including a plurality of mounting locations for receiving the accessories in an operative position on an exterior of the article.

## 10 BRIEF DESCRIPTION OF THE DRAWINGS

Several preferred embodiments of the present invention will now be described, by way of example only, with reference to the appended drawings in which:

15 Figure 1 is a perspective view of a recliner assembly;  
Figure 2 is a perspective assembly view of the recliner assembly of figure 1;  
Figure 3 is a side view of the recliner assembly of figure 1  
Figure 4 is a rear view of the recliner assembly of figure 1;  
Figure 5 is a plan view of a portion of the recliner assembly of figure 1;  
20 Figure 6 is a perspective view of another recliner assembly;  
Figure 7 is a perspective view of a portion of the recliner assembly of figure 5;  
Figure 8 is a rear perspective alternative assembly view of the recliner assembly of figure 5;  
Figure 8a is a perspective view of a portion of the assembly of figure 5; and  
Figure 9 is a perspective view of another a portion of the recliner assembly of figure 1.

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## DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the figure 1, there is provided a chair in the form of a recliner chair device 10 (referred hereinbelow also as a "recliner" and "recliner chair") having a recliner frame 12 supporting a seat  
30 portion 14, a back portion 16 and a pair of arm portions 18. An accessory portion 20 is attachable to

the recliner frame 12 for equipping the recliner chair device with one or more accessories as will be described.

The accessory portion 20 includes an accessory base frame portion 30 attachable to the recliner frame

5 12. As will be described, the accessory base frame has a plurality of mounting locations and a plurality of recliner accessories, each of which is arranged for removable attachment to a corresponding one or more of said mounting locations. The accessories include one or more IV poles, one or more medication containers, one or more anchor or hook locations or a combination thereof. The accessories may also include one or more push bars for a caregiver to shift the location of the recliner.

10 The accessories may also include a tray, for example having a support arm and on of the mounting locations includes a support arm receiving formation.

The base frame portion 30 includes a pair of first plate portions 32 positioned for engaging opposite side regions of the recliner, a pair of second plate portions 34 positioned for engaging a back wall

15 region of the recliner, and (as shown in figure 5) at least one third plate portion 36 for engaging a bottom region of the recliner. Each of the pair of first, second and third plate portions are located in a rear lower corner of the recliner frame 12 and, in each corner, the first, second and third plate portions are attached along their adjacent edges. If desired, one or more of the first, second or third plate portions from one side of the recliner may be joined to a corresponding opposite plate portion (i.e. on

20 the opposite side of the recliner), such as by way of a spanning frame member shown in dashed lines at 36a joining the third plate portions together, as shown in figure 4. Alternatively, one or more of the first, second or third plate portions may form a continuous member with an opposing first, second or third plate portion. This is shown, for example, in figure 5 by the dashed lines illustrating a continuation of the third plate portions 36.

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Referring to figure 1, a number of the mounting locations are positioned on one or more of the first plate portions, one or more of the second plate portions, or one or more of the third plate portions, as desired. One or more of the locations includes a means for engaging an elongate member on an accessory, such as a lower portion of an extensible IV pole 40, or the lower portion of an arm 42

30 supporting a tray 42a. In both cases, the engaging means for supporting the IV pole 40 or the arm 42

include upright sleeve portions 44, 46 dimensioned to receive the corresponding elongate member therein. In addition, horizontally oriented sleeve portions are shown at 48 mounted on the third plate portions and facing both the rear and sides of the recliner (as shown in figures 2 and 3).

5 Figure 1 shows an accessory 50 having a pair of support arms 50a which are alignable with and removably inserted in the corresponding pair of sleeve portions 48. In this case, the accessory 50 includes a hook 50b. Figure 1 also shows a pair of push handles 52 engaged with a corresponding sleeve portion 44.

10 Figure 1 illustrates the second plate portions 34 spaced from one another and an engaging means 60 which is operable to carry a medication container. The engaging means 60 includes a number of frame rings 62 which are dimensioned to engage an outer surface of the medication container, such as an oxygen tank 64, with a central one of the frame rings 62 provided with a threaded fastener 66 to clamp against the container when loaded therein. In this case, the engaging means 60 also includes a pair of  
15 tubular engagement members 68 to engage the corresponding sleeve portions 48. Figure 2 provides an exploded view of the accessory portion 20 and the accessories to be used therewith in this example, it being understood that other accessories may also be used which provide the same or similar mounting arrangement to engage the sleeve portions or other mounting formations on the accessory base frame portion 30.

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Referring to figure 6, there is provided a recliner chair 100 shown in phantom and a conversion kit 102 for converting the recliner chair 100. In this case, the conversion kit 102 has a pair of corner brackets 104, each having a periphery which is complementary with and removably attachable to a corner region of the recliner chair 100. Referring to figure 9, each corner bracket 104 includes a bottom plate portion  
25 106, a rear plate portion 108 and a side plate portion 110. The bracket is formed so that adjacent pairs of the plate portions are attached together along their mating edge regions 112, 114. A number of mounting formations, in the form of sleeve members 120, are provided on the plate portions 106.

In this case, the bottom plate portion 106 has a downwardly oriented flange 122 with a pair of locating  
30 recesses 124 formed therein to locate and position one end of each mounting formation 120 which, in

this case, is a tube or sleeve member (itself welded or otherwise attached to the lower surface 106a of the bottom plate portion 106). The bottom plate has a number of passages to accommodate a number of fasteners in a range of positions so that the bracket can be used on a range of recliners. It will be understood that other passages may be provided as needed. Included are passages 106b and 106c for securing the bottom plate to the recliner. Referring to figure 6, extending between the corner brackets 104 is a support bar 134 having a pair of telescoping members 134a, 134b, each of which is mounted to a corresponding bottom plate 106. Referring to figure 9, the remote end portions of each telescoping member 134a, 134b has one or more passages 134c to receive a fastener 134d passing through the aligned passages 134c with passages 106d in the bottom plate. Referring to figure 6, the telescoping members 134a, 134b are also provided with a threaded clamp member 136 for fixing the length of the support bar 134 according to the width of the recliner. The support bar may be installed on the corner brackets 106 before they are installed on the recliner, if desired. A pair of vertical sleeve members 130, 132 is mounted to the rear plate portion 108 and the side plate portion 110 respectively. Each vertical sleeve member is respectively provided with a number of setting passages 130a, 132a to receive a locating pin on a complementary mounting arm for an accessory device, as will be described.

Referring to figure 6, the kit 102 includes a pair of push bars 150, each of which is positionable in a corresponding mounting formation in one or more of the corner brackets 104 so as to be adjacent a rear corner of the recliner chair 100. In this case, the push bar has a handle formation 152 which is operatively positioned at an elevation within reach of a caregiver operator of the recliner chair 100. Referring to figure 8a, the push bar 150 is also provided with a releasable locking pin 150a which is received in the corresponding setting passage 130a. The push bar 150 is also provided with a pair of diametrically opposed recesses 150b which are dimensioned to engage a corresponding anchor pin 130b located in the sleeve portion 130, to inhibit rotation of the push bar when in an operative position therewith.

Referring to figure 6, the kit also includes a tray assembly 156 having a mounting arm 158 which is positionable on one of the mounting formations. In this case, the arm 158 is arranged to operatively position the tray adjacent the recliner chair 100, for example beside an upper region of the arm 159. Referring to figure 7, the tray is mounted on a sleeve 156a, itself on slidable relative to mounting arm

158. In this manner, the tray is movable between a storage position shown in figure 7 and an operable position in figure 6 and secured therein by releasable pin 156b, through holes appropriately located in the arm 158.

5 Referring to figure 6, the kit also includes a medication holder, as shown at 160, for securing a medication container, such as a gas canister 162, such as that containing oxygen. The medication holder has a length extensible frame 164 for accommodating different length canisters. To this end, the frame has a pair of U-shaped frame members 166, 168 whose free ends are in telescoping relationship and a number of ring members 170, two of which are mounted on frame member 166 and one of which is  
10 mounted on frame member 168.

Two of the ring members 170 are also provided with free end portions 172 which engage a corresponding sleeve member 120. Also provided is a number of supporting accessories, such as a hook member 174 for supporting such things as a urinary bag and a frame member 176 for supporting  
15 magazines and the like. As shown in figure 8, the hook member 174 and the frame member 176 have mounting fingers 174a, 176a respectively to be received in corresponding sleeve members 120. If desired, the hook member 174 and frame member 176 may be fabricated with the spacing between the mounting fingers 174a, 176a being wider than the spacing of the sleeve members 120 when the mounting fingers are installed in the corresponding sleeve members 120 to give the mounting fingers a  
20 laterally outward bias to aid in keeping the hook members 174 and frame members 176 in place. Other means may also be used to maintain the one or more accessories in their mounted position, such as releasable or removable locking pins or the like. In addition, the accessories may include such things as bumper members 178 as shown in figure 8 to protect the chair from contact with walls, other furniture and the like. Of course, the vertical sleeve members 130, 132 and the horizontal sleeve  
25 members 120 may be used to mount other accessories on the recliner as desired such as computer monitors, leg and arm supports, brackets and the like. While the sleeve members 120 are disclosed in this particular embodiment as horizontal and the sleeve members 130, 132 are described as vertical, they may of course be provided in other orientations or, for that matter may be adjustable as may be needed or desirable when mounting accessories on the recliner, either those mentioned herein or those  
30 not listed herein.

Referring to figure 6, a height adjustable IV stand 180 is also provided with a mounting arm 182 which is similarly dimensioned to that of mounting arm 158 so that the former may also be positioned in a corresponding sleeve member 132. Like the push bar 150, the IV stand 180 is has a releasable locating pin 180a aligned with and lodged in the corresponding setting passage 132a in the sleeve portion 132 and a pair of diametrically opposed recesses 180b which are dimensioned to engage a corresponding anchor pin 132b located in the sleeve portion 132, to inhibit rotation of the IV when in an operative position therewith.

Both the accessory portion 20 used on the recliner 10 and the kit 102 described for use on the recliner 100 enable a normally stationary recliner or other chair to be retrofitted in a manner in which it can be converted relatively easily to a mobile recliner by providing the needed rolling undercarriage as well as the push bars needed for medical personnel to push the now mobile recliner. However, it will also be understood that the accessory portion 20 and the kit 102 may also be used on recliners that are mobile, but lack the accessory mounting location for one or more of the accessories provided in the accessory portion 20 and/or the kit 102. While the accessory portion 20 and the kit 102 are particularly useful for retrofit purposes, it will also be understood that the accessory portion and kit 102, or portions thereof, may be used in the initial manufacture of a recliner to make the recliner capable of being used with a wider range of accessories.

The retrofitting of a recliner will now be described with reference to the kit 102. If the recliner 100 is already provided with casters, the caster assembly is removed from each rear corner region of the recliner 100. Referring to figure 9, the corner brackets 104 are then installed in each corner region by one or more threaded fasteners passing through one or more of the passages provided in the bottom plate portion, for example as provided at 106b and 106c to secure each corner bracket into a frame portion of the recliner 100, shown schematically at 100a. In this case, the frame portion 100a has a relatively wide portion 100b which is located in the corner and a relatively narrow span 100c extending in a forward direction from the corner along a side periphery of the recliner 100. It will be understood that the relatively wide portion is dimensioned, among other reasons, to provide a suitably dimensioned seat for the frame on the caster assembly shown at 181. It will be understood that the passages 106b

and 106c are provided on both wings of the bottom plate 106 to allow the same corner bracket to be used in either rear corner of the recliner.

With each corner bracket secured to the frame portion of the recliner 100, the support bar 134 may be installed as described above (if not already in place) followed by the installation of the accessories. For instance, the push bars 150 may each be aligned with a corresponding sleeve member 130 and the releasable locating pin 150a aligned with and lodged in the corresponding setting passage 130a depending on the position desired for the push bar 152. It follows that the number of setting passages 130a may be increased as desired to increase the number of available positions for the push bars 150.

The tray assembly 156 and or IV stand 180 may then be installed in a corresponding sleeve member 132. Next the medication holder 160 is installed by adjusting the spacing of the two free end portions 172 of the ring portions 170 in order to match the spacing between the corresponding sleeve members 120. The medication holder 160 is then installed by passing the free end portions 172 through the sleeve members 120. Next, the urinary hook 174 and frame member 176 may be installed by aligning their mounting figures 174a, 176a with the corresponding sleeve members 120 and inserting the former in the latter.

While the present invention has been described for what are presently considered the preferred embodiments, the invention is not so limited. To the contrary, the invention is intended to cover various modifications and equivalent arrangements included within the spirit and scope of the appended claims. The scope of the following claims is to be accorded the broadest interpretation so as to encompass all such modifications and equivalent structures and functions.

While the accessories herein are described as being removably installed on the recliner, it will be understood that one or more of the accessories may also be rendered permanently attached to the corresponding mounting location by welding or the like. While the brackets shown here are attachable to the rear section of the recliner, they may, alternatively, be mounted in another section of the recliner, such as, for example, the front section. Furthermore, a bracket may be attachable to each corner of the recliner, if need be. In addition, the bracket assembly and accessories and other features described

herein are applicable to other chairs which may or may not be mobile and may or may not recline. In addition, the bracket assembly and accessories and other features described herein are applicable to other articles, be they used in a medical environment, a human transport or other environment, and which are receptive to the bracket assembly or other features as described herein.